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HAZARD IDENTIFICATION AND RISK ASSESSMENT IN GARMENT SEWING AND PACKING UNIT

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ABSTRACT
Hazard Identification and Risk Analysis were carried out in garment sewing and packing unit. Risk rating has been calculated from the point of view of the severity, probability and frequency of occurrence. Risk rating was been divided into three categories. Low, medium and high risk rating were assigned depending upon the severity of occurrence and categorized as 1 to 7, 8 to 14 and 15 to 20, respectively. It has been found from this study that there is medium risk associated in running a garment sewing and packing unit. Different control measures were identified and suggested to ensure safety of the workforce in the factory.

Keywords:
Hazard, Risk, Low, Severity, Probability.

I. INTRODUCTION

The essential elements of the health and safety management system is hazard identification. It is the foundation for developing safe work procedures, establishing prevention programs and making other precautions to eliminate or control the hazards. A hazard is any source of potential damage, harm or adverse health effects on something or someone. Risk is the chance that a hazard will cause harm. Hazard identification process involves identifying both existing and potential workplace hazards, assessing the risks, determining and implementing the controls, and reviewing hazards.

Employers have the legal responsibility to identify and control, to the best of their ability, workplace hazards in order to protect workers. Likewise, workers have the right to know about the hazards of the job and how to protect themselves, and the responsibility to follow company rules that outline the hazard control processes. It is the responsibility of all workers to understand what a hazard is, what the risk is, how the hazards can affect people, property, and the environment, and how to prevent injury or illness from that hazard. Hazard identification of different activities in a garment sewing and packing unit has been carried out. Activities have been classified under several categories and risk assessment has been carried out based on the severity, probability and frequency of occurrence. Major activities and sub categories are listed below. This study is carried out and the way to reduce the risk is to be suggested.

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II. Methodology

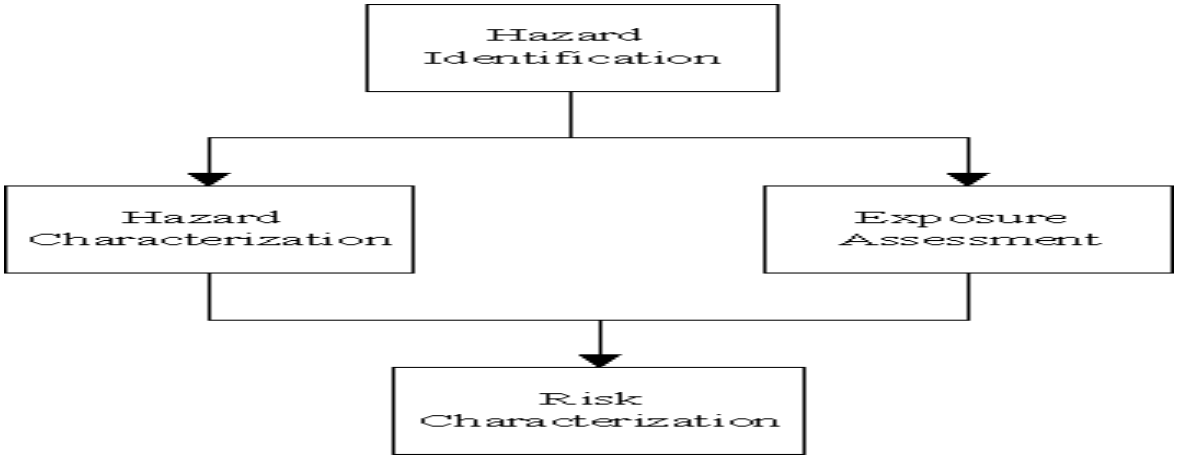

Fig1: HIRA process

III. HAZARD IDENTIFICATION AND RISK ASSESSMENT IN GARMENT SEWING AND PACKING UNIT

8.3 RiskAnalysis								
Severity **1 = Minor** **3 = seriously (normally reversible)** **6 = Major (normally not reversible)** **10=Fatal**	**Probability** **1=Unlikely** **2=Possible** **4 =Probable** **6=Certain**	**Frequency** **1 = No recorded Occurrence** **2=one occurrence** **3= two occurrences** **4=more than two occurrences**		**Risk Rating** **1-7= Low** **8-14=Medium** **15-20=High**				
Activity Description	Hazard	Who is at Risk	Controls	Severity 1-10(X)	Probability 1-6(Y)	Frequency 1-4(Z)	R.R X+Y+Z	Additional Controls

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A. contact with machines								
Flat lock machines	Finger	Employees working in sewing machine	By providing the needle guard it prevents the operator from getting his/her hand beneath the needle.	3	1	1	5	Awareness given to employees about the needle guard.
Flatlock machines	Eye injury	Employeesworkinginsewingmachine	It prevents the brokenneedlethat fly offfrom the machine andhurtingthe user.	6	1	1	8	Awareness given toemployees about theneedleguard.
Overlock machines	Finger	Employeesworking in thesewingmachine.	By providing theneedle guard itprevents the operatorfrom getting his/herhand beneath theneedle.	1	1	1	3	Awareness given toemployees about theSOP.
Overlock machines	Eyeinjury	Employees working in thesewing machine.	By providing theneedle guard which ismade up of glassmaterialtheviewof	6	2	1	9	Awareness given toemployees about theSOP.

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StappingSinger	Finger	Employees working in thesewing machine.	By providing theneedle guard itprevents the operatorfrom getting his/herhand beneath theneedle.	1	2	1	4	Awareness given toemployees about theSOP.
Singer	Eyeinjury	Employees working in thesewing machine	By providing theneedle guard which ismade up of glassmaterialtheviewof	6	2	1	9	Awareness given toemployees about theSOP.
Fusing	Finger	Employees working in hot press machine	By completely covering the hot surface it will avoid injury	1	2	1	4	Awareness given toemployees about theSOP.
Stapping	Finger	Employees working in tag punching machine	By using proper PPE it will avoid injury	1	2	1	4	Awareness given to the employees about PPE
MECHANICAL DAMAGE TO SERVICES, PPE or Other item								
Tearing of hard gloves	Injury	Employees using PPE	Low usage	6	1	1	8	Awareness given to employess

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								about the importance of using PPE
Face mask	Injury	Employees using PPE	Low usage	6	1	1	8	Awareness given to employess about the importance of using PPE
Ear plugs	Injury	Employees using PPE	Low usage	6	1	1	8	Awareness given to employess about the importance of using PPE
Falling object from height								
Falling of material from racks while handling	Major injury	Materials are placed in racks with proper hinged hooks with the wall	Materials are going to be arranged in horizontally sequence	6	1	1	8	Awareness given to employees about the risk involved
Fire /explosive								
Fire due to diesel storage	Major	All employees	Sufficient protection is to be provided	6	2	1	9	Awareness given to employees about do and don't

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								in the area
Fire due to electrical short circuit	Major	All employees	Sufficient fire protection equipment is need to be providied	6	2	1	9	Awareness about do and don't s for electrical power points and connection
Fire due to waste storage	Major	All employees	Waste are disposed regularly and stored separately based on the property	6	2	1	9	Awareness about do and don't s for waste storage is given
Electrical								
Main control panel	Electrical shock	Electrical maintenance employee	All safety gadgets are need to be provided	6	2	1	9	Awareness given to employee about the handling and regular maintenance of control panel
Sub control panel	Electrical shock	Electrical maintenance employee	All safety gadgets are need to be provided	6	2	1	9	Awareness given to employee about the handling

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								and regular maintenance of control panel
Distribution boards	Electrical shock	All the employees	All safety gadgets are need to be provided	6	2	1	9	Awareness given to employee about the handling and regular maintenance of control panel
Diesel generator								
Diesel generator	Fall down	Electrical maintenance employee	Proper bed for generator is need to be provided	6	1	2	9	Awareness is given to employee about the need for proper bed
Diesel generator LT cable	Electrical shock	Electrical maintenance employee	Proper wiring for generator is need to be provided	6	1	2	9	Awareness is given to employee about the need for proper wirings
Main control panel	Electrical shock	Electrical maintenance employee	All safety gadgets are need to be provided	6	2	1	9	Awareness given to employee about the handling and regular maintenance of control

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								panel
Noise								
Sewing area	Hearing damage	Employees working in department	Proper PPE is need to be provided	1	2	1	4	Awareness given to employess about importance of PPE
Diesel generator	Hearing damage	Employees working in department	Proper PPE is need to be provided	1	2	1	4	Awareness given to employess about importance of PPE
Psychological , social and medical								
Excessive time	Tiredness	All employees	Working hours need to be restricted and educated employees	6	1	1	8	Supervising department is instructed to monitor the working hours regularly
responsibility	Mental stress	All employees	Work pressure need to ne	6	1	1	8	Instructed to monitor and plan

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			divided proper					
First aid kit	Injury	All employees	First aid kit is need to be placed	6	1	2	9	Instructed to supervising department to place first aid kit in proper place
Facilty& infrastructure								
Shop floor lighting	Injury	All employees	Adequate lighting need to be provided	6	1	1	8	Preventive maintenanc e will ensure safe working area
Cracks in the wall	Major	All employees	Inspected in regular basis and action will be taken for reasons	6	1	1	8	
Corrosion in metal parts	Injury	All employees	Inspected in regular basis and action will be taken for reasons	6	1	1	8	Preventive maintenance will ensure safe working area
Water leakages in pipes	Injury	All employees	Inspected in regular basis and action will be taken for reasons	6	1	1	8	Preventive maintenanc e will ensure safe working area

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Insufficient vehicle parking area	Injury	All employees	Sufficient parking area need provided	6	1	1	8	Preventive maintenance will ensure safe working area

FGS department

ACTIVITY	HAZARDS	AFFECTED MEMBERS	EXISTING CONTROL MEASURES	P	S	R	ADDITIONAL CONTROL MEASURES
Loading & unloading	Ergonomic hazard	Packers	Proper ergonomic postures to be followed.	3	2	6	Refresher training to be given to the employees about ergonomics.
Handling of carton box	Injury	Packers	Operators must be careful while handling carton boxes.	2	3	6	Awareness given to the employees about the SOP.
Use of hydraulic lift to shift materials	Trip hazard	Loadmen	Hydraulics were checked regularly before use. Operators must be careful while handling hydraulics.	3	3	9	Awareness given to the employees about the SOP.

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Lighting	Eye injury	All	Sufficient lux level to be maintained based on the work.	2	3	6	Preventive maintenance will ensure safe working area.
Unintended events	Common hazard	Operators, supervisors	The pathways were marked properly. Emergency exit lighting were periodically inspected & the durability of the lights were recorded. Fire alarm &extinguishers were inspected monthly. The fire alarm is audible &the lights were found.	3	4	12	Provide training to the employees about usage of fire extinguishers& MCP.

IV. CONCLUSION:

Risk assessment in garment industry has been performed in various hazards under physical, chemical, ergonomic hazard, manual handling, health and electrical hazards were identified and controlled by the hierarchy of elimination, substitution, engineering controls, administrative controls and PPE. Hazards in each

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activity were identified & the risk level has been assigned. Different existing control measures and additional control measures have been suggested for each activity.

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